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LOS ANGELES SYMPTOM CHECKLIST: PSYCHOMETRIC EVIDENCE WITH AN ADOLESCENT SAMPLE

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The Los Angeles Symptom Checklist (LASC) is a self-report measure of Posttraumatic Stress Disorder (PTSD) and general distress that has been used with a variety of adult trauma populations. This study provided psychometric support for the instrument's use with adolescents. Internal consistency estimates were .90 and .95 for the 17-item PTSD index and the 43-item full-scale index, respectively. When mean scores were compared across trauma exposure groups, results were supportive of the LASC's ability to detect symptoms of posttrauma sequelae. Confirmatory factor analysis findings supported three highly correlated factors representing the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*) symptom categories of reexperiencing, avoidance and numbing, and arousal.

The Los Angeles Symptom Checklist (LASC; King, King, Leskin, & Foy, 1995), a self-report measure of Posttraumatic Stress Disorder (PTSD) appropriate for use with various trauma groups, was recently introduced into the formal psychological literature, although it has been used for some time under the general nomenclature of the Foy, Sipprelle, Rueger, and Carroll (1984) checklist. The instrument contains 43 items providing a general index of distress as well as a subset of 17 items (e.g., "excessive jumpiness," "inability to express feelings") that yields a *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) based

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continuous score for PTSD. King et al. documented various psychometric properties of the instrument, including internal consistency reliability, test-retest reliability, factor structure, convergent validity, and normative information for a number of samples. Two of these samples were comprised of high-risk adolescents: a group of 91 males (average age = 16.0 years) incarcerated as juvenile offenders (Burton, Foy, Bwanausi, Johnson, & Moore, 1994) and a group of 77 males and females (average age = 15.5 years) enrolled in continuation or alternative schools (Guevara, 1991). Coefficient alphas computed on a combined sample of these two groups were .94 for the full item set and .88 for the LASC's continuous score of PTSD severity.

In response to the paucity of self-report instruments that have been adequately evaluated for use with adolescents exposed to trauma, the original form of the LASC was modified slightly and administered to a large sample of high school students. The purpose of the present study was to provide psychometric evidence for the appropriateness of the modified LASC for use with adolescents. Specifically, the following three objectives were addressed: (a) to determine internal consistency reliability on a large sample of adolescents, (b) to establish some degree of construct validity in terms of mean differences as a function of trauma exposure, and (c) to test a model of PTSD having three correlated symptom dimensions (i.e., reexperiencing, avoidance and numbing, and arousal).

Method

Sample and Procedures

The sample was composed of 639 male (48.7%) and female (51.3%) adolescents enrolled in four high schools (three inner city and one suburban) in a large urban school district, which were selected to be representative of the district as a whole. Their average age was 16.9 years. A majority of the sample identified themselves as Latino (48.5%) or African American (25.8%); other ethnic groups represented included Asian or Pacific Islander (7.3%), Caucasian (14.4%), and Native American (.5%). With the written consent of their parents, the students completed a brief demographic questionnaire and two measures (i.e., LASC and the Survey of Children's Exposure to Community Violence, SCECV; Richters & Saltzman, 1990) during their lunch periods and received a free McDonald's meal for their participation.

Measures

LASC

As described in more detail in King et al. (1995), the LASC was designed to assess PTSD symptomatology as well as general psychological distress in a variety of trauma groups. The instrument requires respondents to indicate "how much of a problem" each of 43 symptoms is for them at the present time, using a scale ranging from 0 (*not a problem*) to 4 (*extreme problem*).

The wording of approximately half of the items (n = 24) was modified for use with an adolescent population. These modifications were of two types. First, the content of four of the original items was revised to be more applicable to adolescent concerns; that is, the wording of one item was changed to reflect *boyfriend/girlfriend problems* rather than *marital problems*, and three items were changed to refer to *school* rather than *job* difficulties and dissatisfaction. Second, 20 of the items were modified in order to reduce the reading level required to understand them. For example, *easily fatigued* became *get tired easily*, and *marked self-consciousness* was changed to *very worried about what others think or feel about me*. As with the adult version of the instrument, participants' total scores on the 17-item PTSD index and on the 43-item full-scale index provide continuous measures of PTSD symptomatology and general psychological distress, respectively.

SCECV

The measure of trauma exposure selected for the present study was a 52-item survey of community violence, adapted from the SCECV. Researchers have become increasingly interested in the consequences of community violence exposure, particularly for children and adolescents, and are beginning to conceptualize community violence as a traumatic stressor (Foy et al., in press). The SCECV provides a series of sentences describing

varying levels of exposure to violent or life threatening events (e.g., being chased by gangs or individuals; being threatened with serious physical harm; being attacked or stabbed with a knife; being sexually assaulted, molested, or raped). Level of exposure to community violence is reflected in variations in the wording that describes the context in which the event was experienced. For most events, there are three variations and, hence, three items: (a) The event may have happened directly to the respondent (e.g., "I have been chased by gangs or individuals"); (b) The event may have been observed by the respondent, happening to another (e.g., "I have seen someone else being chased by gangs or individuals"); and (c) the event may have simply been "heard about" by the respondent (e.g., "I know someone who has been chased by gangs or individuals"). Respondents are requested to provide a *true* or *false* answer to every statement in the survey.

The SCECV has been used, in some form, in a large number of studies designed to investigate the prevalence and correlates of community violence exposure among youth attending elementary through high school in a variety of urban communities (e.g., Richters & Martinez, 1993). Evidence for the construct validity of the SCECV is suggested by significant positive correlations obtained between community violence exposure and depressive symptomatology (Lorion & Saltzman, 1993), general internalizing symptomatology (Osofsky, Wewers, Hann, & Fick, 1993), and PTSD symptomatology measured by the Trauma Symptom Checklist for Children (Singer, Anglin, Song, & Lunghofer, 1995) and the revised edition of the Purdue Posttraumatic Stress Scale (Fitzpatrick & Boldizar, 1993).

For the purposes of the present study, participants were divided into three subgroups, based on their exposure to life threatening events: (a) those who had never observed or experienced any event directly, though they may have "heard about" one or more events; (b) those who had observed one or more events happening to another, but were not themselves the victims; and (c) those who were the victims of one or more events. This approach assumes an underlying continuum of severity of community violence exposure. It was expected that witnessing an event (i.e., Group b) would be associated with higher levels of PTSD symptomatology and general distress than never having observed or experienced an event (i.e., Group a); moreover, it was expected that direct victimization (i.e., Group c) would be associated with the highest levels of PTSD symptomatology and general psychological distress, as measured by the LASC. This dose-response expectation is based on a great deal of previous research in the area of PTSD, which has documented a consistent relationship between level of trauma exposure and symptomatology. The highest level of trauma exposure is typically defined as that which involves both physical injury and a perceived threat to life (Foy, 1992).

Analyses

Descriptive statistics and internal consistency reliability estimates were computed first. Then, one-way analyses of variance were conducted to examine differences in means across the three exposure groups, for the sample as a whole and for males and females separately. Consistent with the dose-response hypothesis, tests for a linear trend were performed. These analyses were conducted for both the 43-item general distress score and the 17-item PTSD index. Finally, a multisample confirmatory factor analysis, postulating three correlated factors (i.e., Criterion B/reexperiencing, Criterion C/avoidance and numbing, and Criterion D/arousal for fourth edition *DSM*, *DSM-IV*; American Psychiatric Association, 1994), was undertaken for subgroups of male (n = 277) and female (n = 262) adolescents, with a series of increasingly constrained models designed to evaluate the equivalence of LASC factor structure across genders. Employing the PRELIS 2 (Joreskog & Sorbom, 1993b) and LISREL 8 (Joreskog & Sorbom, 1993a) software packages, generalized least squares estimation was applied to matrices of variances and covariances among the observed responses to the 17 PTSD items.[1]

[1]Copies of these matrices, as well as the instrument itself, may be obtained from the first author upon request.

Results and Discussion

The mean of the 17-item PTSD index was 16.19 (*SD* = 12.57), and the mean of the 43-item index was 37.90 (*SD* = 28.21). These means are higher than those obtained in the sample of younger, predominantly male adolescents attending continuation or alternative schools (*M* = 12.29, *SD* = 10.63; *M* = 27.51, *SD* = 21.83 for the PTSD and general distress indexes, respectively; Guevara, 1991), although considerably lower than those found among clinical samples of Vietnam veterans and survivors of childhood sexual abuse (see King et al., 1995, for normative data from samples of this kind). The 17-item index correlated .86 with the sum of the remaining 26 LASC items for the sample as a whole; for male adolescents, this correlation was .85, and for female adolescents, it was .87. Coefficient alphas obtained from the present sample were quite acceptable: .90 for the 17-item PTSD index and .95 for the full set of items.

When mean scores were compared across community violence exposure groups, all six overall *F* tests for group differences were significant (see Table 1). The tests for an expected linear trend in the means were supported for the sample as a whole and for the female adolescent respondents. In these cases, those adolescents reporting no exposure to traumatic events scored lowest on the LASC, whereas those reporting victimization scored highest, with the order of LASC means being consistent with a dose-response expectation. For the male adolescents, a significant linear trend across the three exposure groups was not found for either the PTSD index or the general distress index. There was relatively little difference between those with no direct exposure to community violence and those in the observed only category. Some support for an expected dose-response relationship for males was apparent, however, in the post hoc contrasts of means for the observed-only group and the victim group. Using Scheffé's test and these two group means on the 17-item PTSD index, a significant difference was obtained, t (272) = −3.32, $p < .05$; using Scheffé's test and means on the 43-item index, a significant difference also resulted, t (268) = −3.26, $p < .05$. The findings, therefore, were generally supportive of the ability of the LASC to detect relevant symptoms of distress and posttrauma sequelae, providing some evidence for construct validity vis-a-vis trauma exposure. Perhaps attention to individual differences characteristics as covariates might increase the power of contrasts in future research, especially in testing for a linear trend for male adolescents. In particular, the optimal covariate would be one that is related to responses on the LASC and only marginally related to exposure.

Regarding the multisample confirmatory factor analysis, the structure that best fit the data was one in which factor loadings, factor covariances, and factor variances were equivalent for male and female adolescents. This model produced a discrepancy index or chi-square of 534.73 (df = 252, with n = 277, male adolescents, and n = 262, female adolescents). The LISREL goodness of fit index (Joreskog & Sorbom, 1993a) was .90; the root mean square error of approximation (Steiger, 1990) was .046; and the comparative fit index (Bentler, 1990) was .96. Although the chi-square discrepancy between the observed variance-covariance matrix and the derived matrix was significant, the other fit indexes did generally support good model-data fit. The LISREL goodness of fit index and the comparative fit index both attained the recommended standard of .90, whereas the value of the root mean square error of approximation, an index of average discrepancy per degree of freedom, would be also judged as indicative of good fit (Browne & Cudeck, 1993). In fact, the probability that its true value is less than the .05 standard was .90.

The LISREL loadings of the 17 LASC PTSD items on their respective factors are presented in Table 2; because the best fitting model was one in which loadings were equivalent for both genders, a single set of within-groups standardized loadings are shown. The values (comparable to beta weights) were all moderately high to high (ranging from .53 to .85), and the associated t statistics all exceeded the recommended criterion of 2.00. Indeed, all were greater than 9.00. The three factors were highly intercorrelated: between reexperiencing and avoidance and numbing, .94; between reexperiencing and arousal, .95, and between

Table 1
Means and Standard Deviations for Groups Formed According to Trauma Exposure

	Full sample				Males				Females			
	43-item		17-item		43-item		17-item		43-item		17-item	
Exposure level	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
No direct exposure	18.15[a]	21.69	7.85[a]	8.86	18.57[b]	18.71	9.43[b]	10.29	19.73[c]	25.41	7.45[c]	8.79
Observed	31.40[d]	28.23	13.15[e]	11.81	22.31[f]	23.20	9.23[g]	9.37	34.89[h]	28.85	14.61[i]	12.15
Victim	40.99[j]	27.77	17.61[k]	12.66	36.96[l]	27.40	15.99[m]	12.40	47.22[n]	28.09	20.16[o]	13.01
F[p]	12.20***		12.46***		6.60**		6.52**		9.73***		10.31***	
F[q]	13.00***		11.98***		3.23		2.05		9.77**		10.58**	

[a]$n = 20$. [b]$n = 7$. [c]$n = 11$. [d]$n = 157$. [e]$n = 160$. [f]$n = 42$. [g]$n = 43$. [h]$n = 107$. [i]$n = 109$. [j]$n = 452$. [k]$n = 459$. [l]$n = 228$. [m]$n = 231$. [n]$n = 174$. [o]$n = 176$. [p]Differences in means. [q]Linear trend.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 2
Factor Loadings, Means, and Standard Deviations of 17 LASC PTSD Items

Item	Loadings[a]			Males		Females	
	I	II	III	*M*	*SD*	*M*	*SD*
Nightmares	.62			.69	1.05	.48	.94
Vivid memories of unpleasant experience	.57 (9.17)			.56	1.14	.41	.94
Waking during the night	.74 (12.56)			.91	1.21	.66	1.07
Inability to express feelings		.55		1.55	1.45	1.54	1.41
Difficulty with memory		.81 (10.31)		.88	1.20	.78	1.13
Avoidance of activities that remind you of prior unpleasant experiences		.69 (10.16)		.95	1.30	.78	1.16
Trouble trusting others		.61 (9.97)		1.76	1.46	1.34	1.26
Loss of interest in usual activities		.76 (10.80)		.93	1.15	.79	1.13
Feeling emotionally numb		.71 (10.80)		.96	1.29	.71	1.17
Difficulty falling asleep			.58	1.03	1.09	.84	1.07
Restlessness			.55 (10.10)	1.03	1.11	1.01	1.16
Irritability			.53 (9.05)	1.67	1.31	1.52	1.36
Tension and anxiety			.71 (11.71)	1.42	1.30	1.10	1.20
Difficulty concentrating			.71 (10.91)	1.51	1.26	1.31	1.25
Excessive jumpiness			.65 (9.97)	.66	1.07	.54	.94
Heart palpitations			.79 (11.07)	.75	1.15	.65	1.08
Panic attacks			.85 (11.67)	.81	1.26	.59	1.16

Note. LASC = Los Angeles Symptom Checklist; PTSD = Posttraumatic Stress Disorder. [a]I = Reexperiencing, II= Avoidance and Numbing, III = Arousal. LISREL8 *t* values are in parentheses. The first item for each factor is fixed to establish the metric; hence, no *t* values are computed.

avoidance and numbing and arousal, .94. For informational purposes, means and standard deviations of the 17 items for both male and female adolescents are also provided in Table 2.

In summary, the findings of this psychometric study using a sample of high-risk adolescents suggest that the LASC has appropriate levels of reliability and appears to detect symptoms of distress and PTSD as a function of trauma exposure. Moreover, its underlying structure is congruent with the *DSM* representation of the PTSD diagnosis in that three highly intercorrelated symptom clusters (i.e., reexperiencing, avoidance and numbing, and arousal) appeared to best represent the data.

Further work with this instrument is recommended. The measure of exposure to community violence used in the present study did not distinguish lifetime events from more current events. Perhaps future researchers interested in similar issues should opt for exposure measures that catalog more recent events, which may likely exhibit a stronger impact on existing symptomatology. What's more, the LASC should be administered to a variety of well defined adolescent trauma groups in addition to those exposed to community violence. The adult version of this instrument has been utilized with both general psychiatric outpatients (Hanley, Piersma, King, Larson, & Foy, 1992) and survivors of sexual abuse (Rowan, Foy, Rodriguez, & Ryan, 1994); these applications might prove fruitful in an adolescent age group as well. In its use with adult samples, the LASC has been scored as a continuous measure of symptomatology, and a categorical diagnosis of PTSD has been obtained using a procedure described in King et al. (1995). Houskamp and Foy (1991) found that LASC-based diagnoses corresponded well to Structured Clinical Interview for *DSM-III-R* (SCID-R; Spitzer & Williams, 1985) diagnoses, with a sensitivity rate of 70% and a specificity rate of 80%. These findings need to be extended to adolescents, and, in general, the ability of the LASC to discriminate clinical from nonclinical samples of adolescents should be assessed. A comparison of the LASC with other measures of self-reported distress used with adolescent samples, such as the Youth Self-Report (Achenbach, 1991), Children's Depression Inventory (Kovaks, 1985), and Children's Posttraumatic Stress Reaction Index (Frederick, Pynoos, & Nader, 1992) would further contribute to the construct validation of the instrument.

Finally, the results of the present investigation suggest that the LASC may be used as a screening instrument with populations of adolescents recently exposed to trauma or members of groups, such as incarcerated adolescents, who are at particularly high risk for trauma exposure and associated psychological distress.

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